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ECT/US 98/21141
NO/US '07 DEC 1998

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><MW: 120922

MVFPMWTLKRQILILFNIILISKLLGARWFPKTLPCDVTLDVPKNHVIVDCTDKHLTEIP
GGIPTNTTNTLTINHIPDISPASFHRLDHLVEIDFRCNCVPIPLGSKNNMCIKRLQIKP
RSFSGLTYLKSLYLDGNQLLEIPQGLPPSLQLLSLEANNIFSIRKENLTELANIEILYL
QNCYYRNP CYVSYSIEKDAFLNLT KLKVL SLKDNNVTAVPTVLPSTLT ELYLYNNMIAKI
QEDDFNNLNQLQILDLSGNCPRCYNAPFPCAPCKNNSPLQIPVNAFDALTELKVLRLHSN
SLQHVP PRWFKNINKLQELDLSQNFLAKEIGDAKFLHFLPSLIQLDLSFN FELQVYRASM
NLSQAFSSLKSLKILRIRGYVFKEKLSFNLSPLHNLQNLVLDLGTNFIKIANLSMFKQF
KRLKVIDLSVNKISPSGDSSEVGFC SNARTSVESYEPQVLEQLHYFRYDKYARSCRFKNK
EASFMSVNESCYKYGQTLDSLKNSIFFVKSSDFQHLSFLKCLNLSGNLISQTLNGSEFQP
LAELRYLD FSNRLDLLHSTAFEELHKLEVLDISSNSHYFQSEGITHMLNFTKNLKV LQK
LMMNDNDISSSTSRTMESESLRTLEFRGNHLDVLWREGDNRYLQLFKNLLKLEELD ISKN
SLSFLPSGVFDGMPPNLKNLSLAKNGLKSF SWKKLQCLKNLETDL SHNQLTTVPERLSN
CSRSLKNLILKNNQIRSLTKYFLQDAFQLRYDLSSNKIQMIQKTSFPENVLNNLKMLLL
HHNRFLCTCDAVWFVWWVNHT EVTIPYLATDVTCVGP GAHKGQSVISLDLYTCELDLTNL
ILFSLSISVSLFLMVM MTASHLYFWDVWYIYHFCKAKIKGYQRLISPDCCYDAFIVYDTK
DPAVTEWVLAELVAKLEDPREKHFNLCLEERDWLPGQPVL ENLSQS IQLSKKTVFVMTDK
YAKTENFKIAFYLSHQRLMDEKVDV IILIFLEKPFQKSKFLQLRKRLCGSSVLEWPTNPQ
AHPYFWQCLKNALATDNHVAYSQVFKETV

FIG. 1

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MENMFLQSSMLTCIFLLISGSCELCAEENFSRSPCDEKKQNDSVIAECSNRRLQEVPT
VGKYVTELDLSDNFITHITNESFQGLQNLTKINLNHNPNVQHONGNPGIQSNGLNITDGA
FLNLKNLRELLLEDNQLPQIPSGLPESLTELSLIQNNIYNITKEGISRLINLKNLYLAWN
CYFNKVCEKTNIEDGVFETLTNLELLSLSFNSLSHVPPKLPSSLRKFLSNTQIKYISEE
DFKGLINLTLLDLSGNCPRCFNAPFPCVPCDGGASINIDRFAFQNLTLRLYNLSSTSLR
KINAAWFKNMPHLKVLDLEFNVLVGEIVSGAFLTMLPRLEILDLSFNYIKGSYPQHINIS
RNFSKLLSLRALHLRGYVFQELREDDFQPLMQLPNLSTINLGINFIKQIDFKLFQNFNL
EIIYLSNRISPLVKDTRQSYANSSSFQRHIRKRRSTDFEFDPHSNFYHFTRPLIKPQCA
AYGKALDLSLNSIFFIGPNQFENLPDIACLNLSANSNAQVLSGTEFSAIPHVKYLDLTNN
RLDFDNASALTELSDEVLDSLNSHYFRIAGVTHHLEFIQNFTNLKVLNLSHNNIYTLT
DKYNLESKSLVELVFSGNRLDILWNDDDNRYISIFKGLKNLTRLDSLNLRLKHIPNEAFL
NLPASLTELHINDNMLKFFNWTLLQQFPRLELLDLRGNKLLFLTDSLSDFTSSLRTL
HNRISHLPSGFLSEVSSLKHLDDLSSNLLKTINKSALETKTTTKLSMLELHGPNPECTCDI
GDFRRWMDEHLNVKIPRLVDVICASPGDQRGKSIVSLELTTCVSDVTAVILFFFTFFITT
MVMLAALAHHLFYWDVWFIYINVCLAKVKGYRSLSTSQTIFYDAYISYDTKDASVTDWVINE
LRYHLEESRDKNVLLCLEERDWDPLAIIDNLMQSINQSKKTVFVLTKKYAKSWNFKTAF
YLALQRLMDENMDVIIIFILLEPVLQHSQYLRLRQRICKSSILQWPDNPKAEGLEFWQTLRN
VVLTENDSRYNMYVDSIKQY

<1041 residues, 0 stop; molecular weight: 119856.26

FIG. 3

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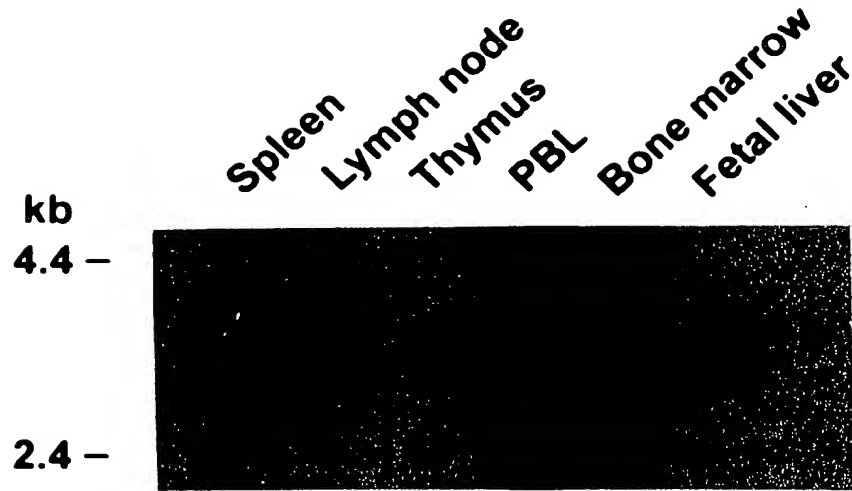


FIG. 5A

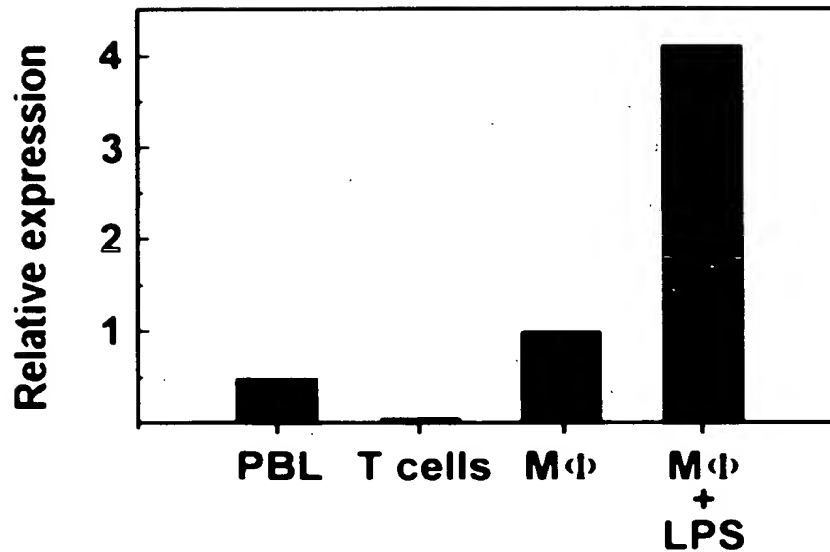


FIG. 5B

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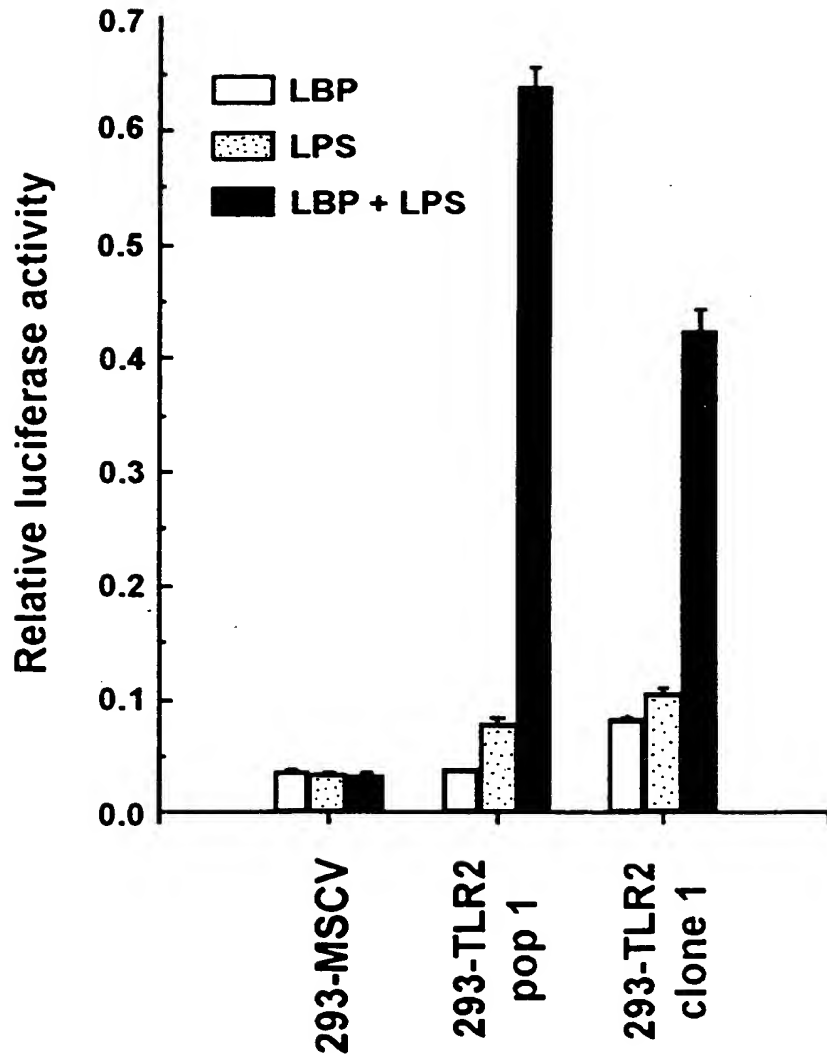


FIG. 6A

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— 105 kDa

FIG. 6B

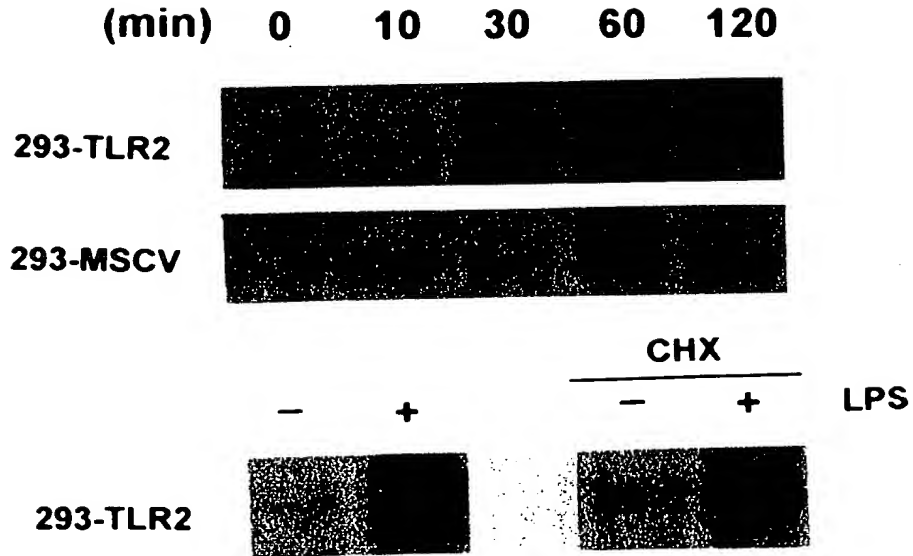


FIG. 6C

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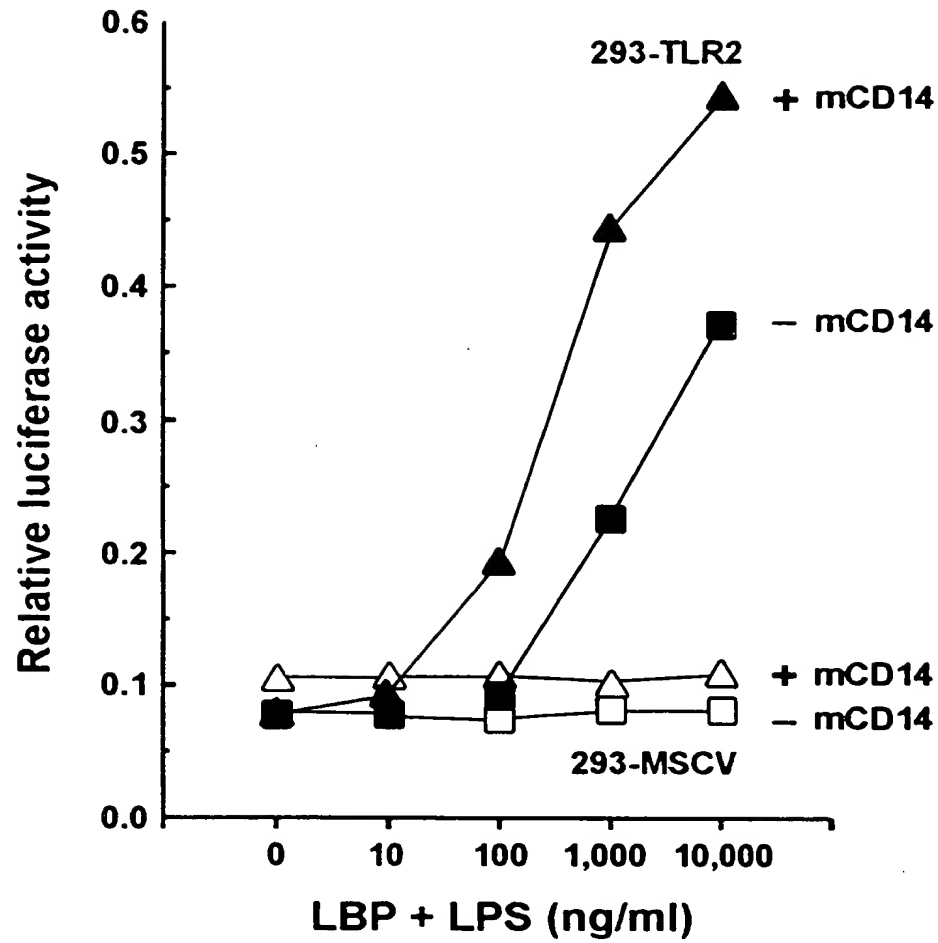


FIG. 6D

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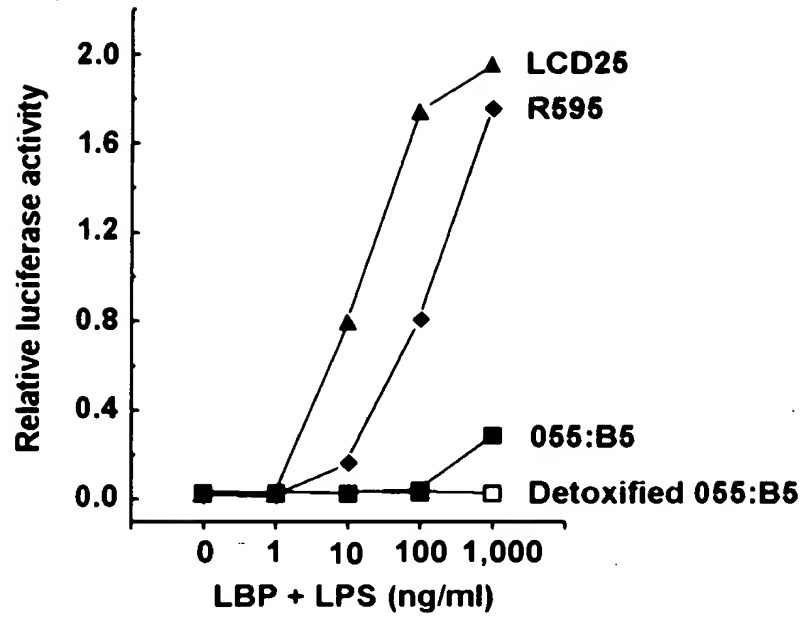


FIG. 8A

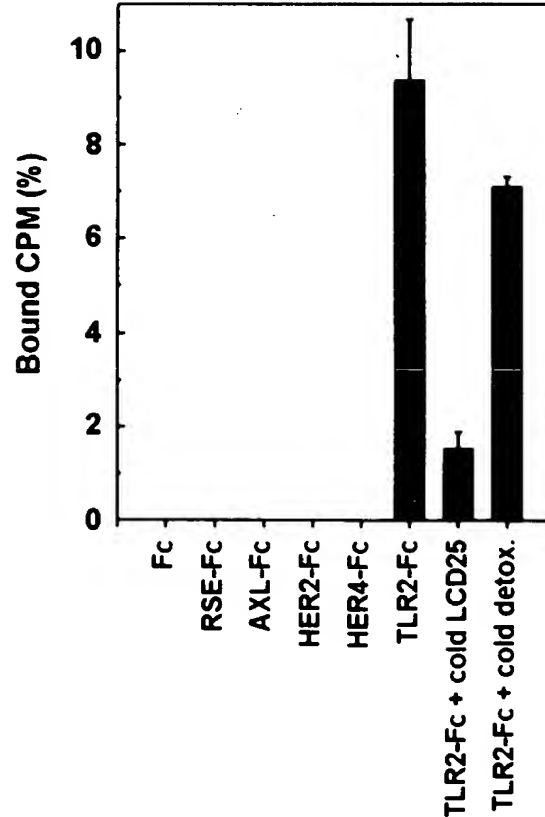


FIG. 8B

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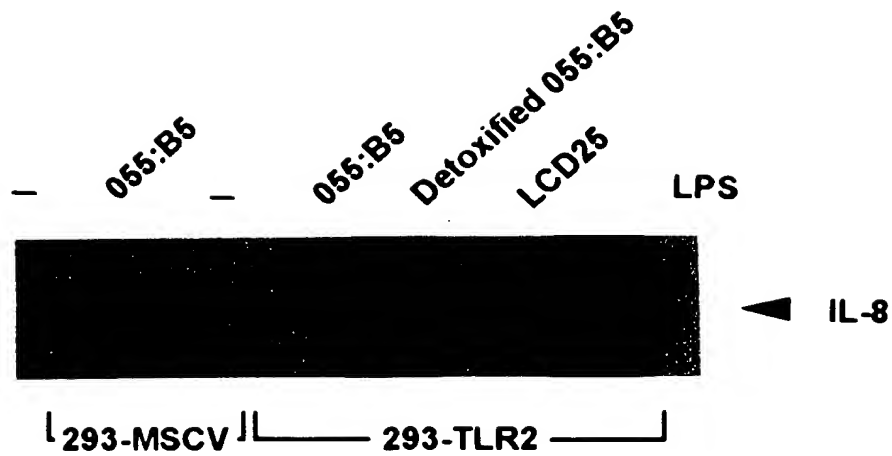


FIG. 9

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GTTATGCCTAGAAAACATTTCTCAAGAATTAGAATTACGATATGCTGTCAAACACAATGA
CTTATTTGAACCTCTTTTATTTGTAGGTTGAAGCACTGGACAATGCCACATACTTTGTGG
ATGGTGTGGGTCTTGGGGGTCATCATCAGCCTCTCCAAGGAAGAATCCTCCAATCAGGCT
TCTCTGTCTTGTGACCGCAATGGTATCTGCAAGGGCAGCTCAGGATCTTTAAACTCCATT
CCCTCAGGGCTCACAGAAGCTGTAAAAAGCCTTGACCTGTCCAACAACAGGATCACCTAC
ATTAGCAACAGTGACCTACAGAGGTGTGTGAACCTCCAGGCTCTGGTGTGACATCCAAT
GGAATTAACACAATAGAGGAAGATTCTTTTTCTTCCCTGGGCAGTCTTGAACATTTAGAC
TTATCCTATAATTACTTATCTAATTTATCGTCTTCCCTGGTTCAAGCCCCTTTCTTCTTTA
ACATTCTTAAACTTACTGGGAAATCCTTACAAAACCCCTAGGGGAAACATCTCTTTTTTCT
CATCTCACAAAATTGCAAATCCTGAGAGTGGGAAATATGGACACCTTCACTAAGATTCAA
AGAAAAGATTTTGCTGGACTTACCTTCCCTTGAGGAACCTTGAGATTGATGCTTCAGATCTA
CAGAGCTATGAGCCAAAAAGTTTGAAGTCAATTCAGAATGTAAGTCATCTGATCCTTCAT
ATGAAGCAGCATATTTTACTGCTGGAGATTTTTTGTAGATGTTACAAGTTCGGTGGAAATGT
TTGGAAGTGCAGATACTGATTTGGACACTTTCATTTTTTTCAGAACTATCCACTGGTGAA
ACAAATTCATTGATTAAAAAGTTTACATTTAGAAATGTGAAAATCACCGATGAAAGTTTG
TTTCAGGTTATGAACTTTTGAATCAGATTTCTGGATTGTTAGAATTAGAGTTTGATGAC
TGTACCCTTAATGGAGTTGGTAATTTTAGAGCATCTGATAATGACAGAGTTATAGATCCA
GGTAAAGTGGAAACGTTAACAATCCGGAGGCTGCATATTCCAAGGTTTTACTTATTTTAT
GATCTGAGCACTTTATATTCATTACAGAAAGAGTTAAAAGAATCACAGTAGAAAACAGT
AAAGTTTTTCTGGTTCCTTGTTTACTTTCACAACATTTAAAATCATTAGAATACTTGGAT
CTCAGTGAAAATTTGATGGTTGAAGAATACTTGAAAAATTCAGCCTGTGAGGATGCCTGG
CCCTCTCTACAACTTTAATTTTAAAGGCAAAATCATTTGGCATCATTGGAAAAAACCGGA
GAGACTTTGCTCACTCTGAAAACTTGACTAACATTGATATCAGTAAGAATAGTTTTTCAT
TCTATGCCTGAACTTGTGAGTGGCCAGAAAAGATGAAATATTTGAACTTATCCAGCACA
CGAATACACAGTGTAACAGGCTGCATTCCCAAGACACTGGAAATTTTAGATGTTAGCAAC
AACAAATCTCAATTTATTTTCTTTGAATTTGCCGCAACTCAAAGAACTTTATATTTCCAGA
AATAAGTTGATGACTCTACCAGATGCCTCCCTCTTACCCATGTTACTAGTATTGAAAATC
AGTAGGAATGCAATAACTACGTTTTCTAAGGAGCAACTTGACTCATTTCACACACTGAAG
ACTTTGGAAGCTGGTGGCAATAACTTCATTTGCTCCTGTGAATTCCTCTCCTTCACTCAG
GAGCAGCAAGCACTGGCCAAAGTCTTGATTGATTGGCCAGCAAATTACCTGTGTGACTCT
CCATCCCATGTGCGTGGCCAGCAGGTTTCAAGATGTCCGCCTCTCGGTGTGCGGAATGTCAC
AGGACAGCACTGGTGTCTGGCATGTGCTGTGCTCTGTTCCCTGCTGATCCTGCTCACGGGG
GTCCTGTGCCACCGTTTCCATGGCCTGTGGTATATGAAAATGATGTGGGCCTGGCTCCAG
GCCAAAAGGAAGCCCAGGAAAGCTCCCAGCAGGAACATCTGCTATGATGCATTTGTTTCT
TACAGTGAGCGGGATGCCTACTGGGTGGAGAACCTTATGGTCCAGGAGCTGGAGAACTTC
AATCCCCCTTCAAGTTGTGTCTTCATAAGCGGGACTTCATTCTTGGAAGTGGATCATT
GACAATATCATTGACTCCATTGAAAAGAGCCACAAAACGTCTTTGTGCTTTTCTGAAAAC
TTTGTGAAGAGTGAGTGGTGCAAGTATGAACTGGACTTCTCCCATTTCCGTCTTTTTTGAT
GAGAACAATGATGCTGCCATTCTCATTCTTCTGGAGCCCATTGAGAAAAAAGCCATTCCC
CAGCGCTTCTGCAAGCTGCGGAAGATAATGAACACCAAGACCTACCTGGAGTGGCCCATG
GACGAGGCTCAGCGGGAAGGATTTTGGGTAAATCTGAGAGCTGCGATAAAGTCCTAGGTT
CCCATATTTAAGACCAGTCTTTGTCTAGTTGGGATCTTTATGTCAGTATTAGTTAAG
TTCATTGACACATAATTATATAAAAACCTACGTGGATGTACCGTCATTTGAGGACTTGCTT
ACTAAAACCTACAAAACCTTCAA

FIG. 10

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MPHTLWMVWVLGVIIISLSKEESSNQASLSCDRNGICKGSSGSLNSIPSGLTEAVKSLDL
SNNRITYISNSDLQRCVNLQALVLTNSGINTIEEDSFSSLGSLEHLDSLNYLSNLSSS
WFKPLSSLTFLNLLGNPYKTLGETSLFSLHTKLQILRVGNMDTFTKIQRKDFAGLTFLE
ELEIDASDLQSYEPKSLKSIQNVSHLILHMKQHILLEIFVDVTSSVECLELRDLDLT
FHFSELSTGETNSLIKKFTFRNVKITDESLEFQVMKLLNQISGLLELEFDDCTLNGVGNF
RASDNRVIDPGKVETLTIRRLHIPRFYLFYDLSTLYSLTERVKRITVENSKVFLVPCL
LSQHLKSLEYLDLSENLMVEEYLKNSACEDAWPSLQTLILRQNHLASLEKTGETLLTLK
NLTNIDISKNSFHSMPCQWPEKMKYLNLSSTRIHSVTGCIPTLEILDVSNNNLNLF
SLNLPQLKELYISRNKMLTLPDASLLPMLLVLKISRNAITTFSSKEQLDSFHTLKTLEAG
GNNFICSCFLSFTQEQQALAKVLIDWPANYLCDSPSHVRGQQVDVRLSVSECHRTAL
VSGMCCALFLLILLTGVLCHRFHGLWYMKMMWAWLQAKRKPRKAPSRNICYDAFVSYSE
RDAYWVENLMVQELENFNPPFKLCLHKRDFIPGKWIIDNIIDSIEKSHKTVFVLSNFV
KSEWCKYELDFSHFRLFDENNDAAAILILLEPIEKKAIPQRFCKLRKIMNTKTYLEWPMD
EAQREGFWVNLRAAIKS

FIG. 11

GAATCATCCA	CGCACCTGCA	GCTCTGCTGA	GAGAGTGC	AAGGGTGGGG	TTTTTGAGCTC	ATCTTTCATCA	TTCATATGAG	GAAATAAGTG	GTAAAAATCCT	100
<MET {trans=1-s, dir=f, res=1}>										
TGGAATATACA	ATGAGACTCA	TCAGAAACAT	TTACATATTT	TGTAGTATTG	TTATGACAGC	AGAGGGTGAT	GCTCCAGAGC	TGCCAGAAGA	AAGGGAAC	200
ATGACCAACT	GCTCCACAT	GTCTCTAAGA	AAGGTTCCCG	CAGACTTGAC	CCCAGGCCACA	ACGACACTGG	ATTTATCCTA	TAACCTCCTT	TTTCAACTCC	300
AGAGTTCAGA	TTTTTCATTCT	GTCTCCAAAC	TGAGAGTTTT	GATTCTATGC	CATAACAGAA	TTCAACAGCT	GGATCTCAA	ACCTTTGAAT	TCAACAAGGA	400
GTTAAGATAT	TTAGATTTGT	CTAATAACAG	ACTGAAGAGT	GTAACCTTGGT	ATTTACTGGC	AGGTCTCAGG	TATTTAGATC	TTTCTTTTTAA	TGACTTTGAC	500
ACCATGCCTA	TCTGTGAGGA	AGCTGGCAAC	ATGTCACACC	TGGAAATCCT	AGGTTTGAGT	GGGGCAAAAA	TACAAAAATC	AGATTTCAG	AAAATTGCTC	600
ATCTGCATCT	AAATACTGTC	TTCTTAGGAT	TCAGAACTCT	TCCTCATATT	GAAGAAGGTA	GCTGCCCCAT	CTTAAACACA	ACAAAAC	ACTTTGTTTT	700
ACCAATGGAC	ACAAATTTCT	GGGTCTTTTT	CGGTGATGGA	ATCAAGACTT	CAAAAAATATT	AGAAATGACA	AATATAGATG	GCAAAAGCCA	ATTTGTAAGT	800
TATGAAATGC	AACGAAATCT	TAGTTTAGAA	AATGCTAAGA	CATCGGTTCT	ATTGCTTAAT	AAAGTTGATT	TACTCTGGGA	CGACCTTTTC	CTTATCTTAC	900
AATTGTGTTG	GCATACATCA	GTGGAACACT	TTCAGATCCG	AAATGTGACT	TTTGTTGGTA	AGGCTTATCT	TGACCACAAT	TCAATTGACT	ACTCAAATAC	1000
TGTAATGAGA	ACTATAAAAT	TGGAGCATGT	ACATTTTCAGA	GTGTTTACGA	TTCAACACAGGA	TAAATCTAT	TTGCTTTTGA	CCAAAATGGA	CATAGAAAAAC	1100
CTGACAATAT	CAAATGCACA	AATGCCACAC	ATGCTTTTCC	CGAATTATCC	TACGAAATTC	CAATATTTAA	ATTTTGCCAA	TAATATCTTA	ACAGACGAGT	1200
TGTTTAAAG	AACATATCCAA	CTGCCTCACT	TGAAAAC	CAATTTGAAT	GGCAATAAAC	TGGAGACACT	TTCTTTAGTA	AGTTGCTTTG	CTAACAACAC	1300
ACCCTTGGAA	CACTTGGATC	TGAGTCAAAA	TCTATTACAA	CATAAAAAATG	ATGAAAAATG	CTCATGGCCA	GAAACTGTGG	TCAATATGAA	TCTGTCTATAC	1400
AATAAATTGT	CTGATTCTGT	CTTCAGGTGC	TTGCCCAAAA	GTATTCAAAT	ACTTGACCTA	AATAATAAAC	AAATCCAAAC	TGTACCTAAA	GAGACTATTTC	1500
ATCTGATGGC	CTTACGAGAA	CTAAATATTG	CATTTAATTT	TCTAACTGAT	CTCCCTGGAT	GCAGTCATTT	CAGTAGACTT	TCAGTTCTGA	ACATTGAAAT	1600
GAACTTCATT	CTCAGCCCAT	CTCTGGATTT	TGTTTCAGAGC	TGCCAGGAAG	TTAAAACTCT	AAATGCGGGA	AGAAATCCAT	TCCGGTGTAC	CTGTGAATTA	1700
AAAAATTTCA	TTCAGCTTGA	AACATATTCA	GAGGTCATGA	TGGTTGGATG	GTCAGATTCA	TACACCTGTG	AATACCTTTT	AAACCTAAGG	GGAAC	1800

FIG. 13A

TAAAGACGT TCATCTCCAC GAATTATCTT GCAACACAGC TCTGTTGATT GTCACCATTG TGGTTATTAT GCTAGTTCTG GGGTTGGCTG TGGCCTTCTG 1900
CTGTCTCCAC TTTGATCTGC CCTGGTATCT CAGGATGCTA GGTCAATGCA CACAAACATG GCACAGGTT AGGAAAACAA CCCAAGAACA ACTCAAGAGA 2000
AATGTCGGAT TCCACGCCAT TATTTATAC AGTGAACATG ATTCTCTGTG GGTGAAGAAT GAATTGATCC CCAATCTAGA GAAGGAAGAT GGTCTATCT 2100
TGATTTGCCT TTATGAAAGC TACTTTGACC CTGGCAAAAG CATTAGTGAA AATATTGTAA GCTTCATTGA GAAAAGCTAT AAGTCCATCT TTGTTTGTGTC 2200
TCCCAACTTT GTCCAGAATG AGTGGTGCCA TTATGAATTC TACTTTGCCC ACCACAATCT CTTCCATGAA AATTCTGATC ATATAATTCT TATCTTACTG 2300
GAACCCATTC CATTCATTTG CATTTCCACC AGGTATCATA AACTGAAAGC TCTCCTGGAA AAAAAAGCAT ACTTGGAAAT GCCCAAGGAT AGGCGTAAAT 2400
GTGGGCTTTT CTGGGCAAAAC CTTGAGCTG CTATTAATGT TAATGATTA GCCACCAGAG AAATGTATGA ACTGCAGACA TTCACAGAGT TAAATGAAGA 2500
GTCTCGAGGT TCTACAATCT CTCTGATGAG AACAGATTGT CTA TAA AATC CCACAGTCTT TGGGAAGTTG GGGACCACAT ACCTGTTGG GATGTACATT 2600
GATACAACTT TTATGATGC AATTGACAA TATTTATTAA AATAAAAAAT GGTATTCCC TTCATATCAG TTTCTAGAAG GATTTCTAAG AATGTATCCT 2700
ATAGAAACAC CTTCAACAAGT TTATAAGGC TTATGAAAA AGGTGTTCTAT CCCAGGATTG TTTATAATCA TGAANAATGT GGCCAGGTGC AGTGGCTCAC 2800
TCTTGTAAATC CCAGCACTAT GGGAGGCCAA GGTGGGTGAC CCACGAGGTC AAGAGATGGA GACCATCCTG GCCAACATGG TGAACCCCTG TCTCTACTAA 2900
AAATACAAAA ATTAGCTGGG CGTGATGGTG CAGGCCTGTA GTCCCAGCTA CTTGGGAGGC TGAGGCAGGA GAATCGCTTG AACCCGGGAG GTGGCAGTTG 3000
CAGTGAGCTG AGATCGAGCC ACTGCACTCC AGCCTGGTGA CAGAGCGAGA CTCCATCTCA AAAAAAAGAA AAAAAAATG GAAAAACATCC 3100
TCATGGCCAC AAAATAAGGT CTAATTCAAT AAATTATAGT ACATTAAATGT AATATAATAT TACATGCCAC TAAAAAGAAAT AAGGTAGCTG TATATTTCCT 3200
GGTATGGAAA AAACATATTA ATATGTTATA AACTATTAGG TTGGTGCAA ACTAATTGTG GTTTTGTCCA TTGAAATGGC ATTGAAATAA AAGTGTAAAG 3300
AAATCTATAC CAGATGTAGT AACAGTGGTT TGGGTCTGGG AGGTTGGATT ACAGGGAGCA TTTGATTCTT ATGTTGTGTA TTTCTATAAT GTTTGAATTG 3400
TTTAGAATGA ATCTGTATTT CTTTATAAG TAGAAAAAAA ATAAAGATAG TTTTACAGC CT 3462

FIG. 13B